



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,622	07/08/2003	Dietrich W. Vook	10021030-1	1472

57299 7590 01/04/2007
AVAGO TECHNOLOGIES, LTD.
P.O. BOX 1920
DENVER, CO 80201-1920

EXAMINER
SELBY, GEVELL V

ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/615,622

Applicant(s)

VOOK ET AL.

Examiner

Gevell Selby

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-25 is/are rejected.
- 7) ☒ Claim(s) 18 and 26-28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-17, and 19-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Fulkerson et al., US 6,603,614.**

In regard to claim 1, Ohta, US 5,895,129, discloses a method of making a camera module, comprising:

providing a sensor housing comprising an image sensor (see figure 1, element 18 and column 4, lines 30-33),

a lens holder comprising a lens (see figure 1, element 2 and column 4, lines 18-20), and

a deformable focus adjustment structure (see figure 1, element 104a and column 4, lines 1-6); and

deforming the focus adjustment structure to move the lens whereby light is focused onto the image sensor (see column 7, lines 25-29).

In regard to claim 2, Ohta, US 5,895,129, discloses the method of claim 1, wherein the focus adjustment structure comprises a material shrinkable in response to energy, and deforming the focus adjustment structure comprises applying energy to at least some of the shrinkable material (see column 7, lines 25-34: the holding members are

formed of a material that expands and contracts or shrinks due the change in heat or applied energy).

In regard to claim 3, Ohta, US 5,895,129, discloses the method of claim 2, wherein the focus adjustment structure comprises heat shrink material, and deforming the focus adjustment structure comprises heating at least some of the heat shrink material (see column 7, lines 25-34: the holding members are formed of a material that expands and contracts or shrinks due the change in heat or applied energy).

In regard to claim 4, Ohta, US 5,895,129, discloses the method of claim 3, wherein at least some of the heat shrink material is heated by contact with a heating element (see column 6, lines 34-50: the air surrounding the holding members is read on as the heating element).

In regard to claim 5, Ohta, US 5,895,129, discloses the method of claim 3, wherein at least some of the heat shrink material is heated by radiant energy (see column 6, lines 34-50: the air surrounding the holding members is read on as the heating element).

In regard to claim 6, Ohta, US 5,895,129, discloses the method of claim 5, wherein it is inherent that applying laser energy the area surrounding the heat shrink material will heat the material causing it to expand due to the temperature increase.

In regard to claim 7, Ohta, US 5,895,129, discloses the method of claim 2 wherein the shrinkable material is disposed uniformly about an optical axis of the lens (see figure 1, element 104a: the holding member is positioned uniformly on both sides of the lens).

In regard to claim 8, Ohta, US 5,895,129, discloses the method of claim 7, wherein it is inherent the ambient air is applied uniformly to the uniformly disposed shrinkable material at times when the air is stagnant thus causing the material to expand, reducing a distance separating the lens and the image sensor.

In regard to claim 9, Ohta, US 5,895,129, discloses the method of claim 7, wherein it is inherent the ambient air is applied asymmetrically to the uniformly disposed shrinkable material at times when the air is flowing from one direction thus causing the material to expand or contract, adjusting where the optical axis intersects the image sensor.

In regard to claim 10, Ohta, US 5,895,129, discloses the method of claim 2, further comprising guiding the lens holder while applying energy to at least some of the shrinkable material (see column 4, line 65 to column 5, line 8).

In regard to claim 11, Ohta, US 5,895,129, discloses the method of claim 1, wherein the lens holder is a monolithic structure (see column 4, lines 7-10).

In regard to claim 12, Ohta, US 5,895,129, discloses the method of claim 1, wherein the lens holder and the sensor housing are formed as a single molding of thermoplastic material (see figure 1, elements 2 and 18: the sensor is attached to the lens barrel or lens holder).

In regard to claim 13, Ohta, US 5,895,129, discloses a system for making a camera module, comprising:

a camera module holder (it is inherent the camera module is encased in a housing to hold all the component) operable to hold a camera module comprising

Art Unit: 2622

an image sensor (see figure 1, element 18) disposed within a sensor housing and a lens holder (see figure 1, element 2) attached to the sensor housing, the lens holder comprising a lens (see figure 1, element 104) and a deformable focus adjustment structure (see figure 1, element 104a); and

a focus adjuster operable to deform the focus adjustment structure to move the lens whereby light is focused onto the image sensor (see column 7, lines 25-29).

In regard to claim 14, Ohta, US 5,895,129, discloses the system of claim 13, wherein the focus adjustment structure comprises a material shrinkable in response to energy material (see column 7, lines 25-34: the holding members are formed of a material that expands and contracts or shrinks due the change in heat or applied energy), and the focus adjuster (see figure 1, element 6) is operable to apply energy to at least some of the shrinkable material (it is inherent the heat generated by the motor applies energy to the material).

In regard to claim 15, Ohta, US 5,895,129, discloses the system of claim 14, wherein the focus adjustment structure comprises heat shrink material (see column 7, lines 25-34: the holding members are formed of a material that expands and contracts or shrinks due the change in heat or applied energy), and the focus adjuster is operable to heat at least some of the heat shrink material (it is inherent the heat generated by the motor applies energy to the material).

In regard to claim 16, Ohta, US 5,895,129, discloses the system of claim 15, wherein it is inherent the focus adjuster (see figure 1, element 6) of the Ohta reference

Art Unit: 2622

comprises a heating element operable for heating at least some of the heat shrink material, because the motor gives off heat when operating.

In regard to claim 17, Ohta, US 5,895,129, discloses the system of claim 15, wherein it is inherent the focus adjuster (see figure 1, element 6) of the Ohta reference discloses comprising a radiant energy source for heating at least some of the heat shrink material because the motor gives off heat when operating.

In regard to claim 19, Ohta, US 5,895,129, discloses the system of claim 14 wherein the shrinkable material is disposed uniformly about an optical axis of the lens (see figure 1, element 104a: the holding member is positioned uniformly on both sides of the lens) and the focus adjuster is operable to uniformly apply energy to the uniformly disposed shrinkable material to reduce a distance separating the lens and the image sensor (see column 4, line 66 to column 5, line 8).

In regard to claim 20, Ohta, US 5,895,129, discloses the system of claim 14 wherein the shrinkable material is disposed uniformly about an optical axis of the lens see figure 1, element 104a: the holding member is positioned uniformly on both sides of the lens) and the focus adjuster is operable to asymmetrically apply energy to the uniformly disposed shrinkable material to adjust where the optical axis crosses the image sensor (see column 4, line 66 to column 5, line 8).

In regard to claim 21, Ohta, US 5,895,129, discloses a camera module, comprising:

an image sensor disposed within a sensor housing (see figure 1, element 18);

a lens holder comprising a lens (see figure 1, element 2); and
a focus adjustment structure (see figure 1, element 104 a) disposed
between the lens holder and the sensor housing,
wherein the focus adjustment structure is deformed whereby light
passing through the lens is focused onto the image sensor (see column 7,
lines 25-29).

In regard to claim 22, Ohta, US 5,895,129, discloses the camera module of claim 21, wherein the lens holder and the focus adjustment structure are sections of a monolithic structure, the lens holder and the focus adjustment structure comprising regions of material with similar chemical compositions but different internal structural arrangements (see column 4, lines 1-10 and figure 1 elements 2 and 104a).

In regard to claim 23, Ohta, US 5,895,129, discloses the camera module of claim 22, wherein at least one region of the focus adjustment structure corresponds to a deformed version of a region of the lens holder (see figure 1 elements 2 and 104a).

In regard to claim 24, Ohta, US 5,895,129, discloses the camera module of claim 22, wherein the at least one region of the focus adjustment structure corresponds to a heat shrunk version of a heat shrinkable region of the lens holder (see figure 1 elements 2 and 104a).

In regard to claim 25, Ohta, US 5,895,129, discloses the camera module of claim 22, wherein the monolithic structure is formed of a thermoplastic material (polycarbonate) and the focus adjustment structure and the lens holder are characterized by different respective cross-linking densities (see column 4, lines 1-10).

Art Unit: 2622

In regard to claim 29, Ohta, US 5,895,129, discloses the camera module of claim 21, wherein the lens holder, the focus adjustment structure, and the sensor housing are formed as a single molding of thermoplastic material (see column 4, lines 1-10).

Allowable Subject Matter

3. Claims 18, 26, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,212,021, discloses an optical apparatus having a temperature compensation function.

US2002/0101531, discloses an imaging device with a lens holder that expands and contracts due to temperature.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gvs



VIVEK SRIVASTAVA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600